

## **REMARKS/ARGUMENTS**

This Amendment and Response is promptly filed to place the above-referenced case in condition for immediate allowance.

The status of the claims is as follows:

Cancelled: 6 and 8;

Amended: 1 - 5 and 7;

Added: None; and

Currently outstanding: 1 -5 and 7.

No new matter is believed to have been added to the application by the submission of the substitute specification and the changes arising therein. The substitute specification is attached hereto as Appendix 1. A marked copy of the substitute specification showing the changes made is attached hereto as Exhibit 2. For both Appendices, the claims are omitted as being amended in this Amendment and Response.

From the outstanding Office action, the Examiner indicated that a certified copy of the Korean application had not been filed. The Examiner also required a substitute specification, and rejected the outstanding claims under 35 U.S.C § 102(e).

Reconsideration is respectfully requested.

Applicant has amended the claims to better reflect the subject matter involved. The amendments made to the claims do not include any narrowing amendment to conform with statute.

### I. Regarding item 1 of the Office Action

The applicant submits a certified copy of the Korean patent application corresponding to this instant US patent application to the USPTO.

### II. Regarding item 2 of the Office Action

We entirely and carefully review the specification to correct many errors in English grammar and syntax without inserting new matter.

1. We rephrase some sentences for clarification of the description and for better understanding of the features of the present invention. More specifically, we wish to inform you of our corrections as below:

1) The phrases, “unwholesome site(s)” and “unwholesome information site(s)” are changed to --undesirable web site (s)-- as the examiner recommended;

2) The last two paragraphs of BACKGROUND OF THE INVENTION are moved into the initial part of SUMMARY OF THE INVENTION, because they are related to the present invention and should be located therein under the U.S. practice. Therefore, such relocation of the paragraphs is not an amendment for inserting new matter thereinto;

3) The term, “link block service,” is changed to --undesirable web site blocking service--, for clarity;

4) The phrase in the description, “consists of,” is changed to --includes--, to comply with the US practice;

2. The title of the present invention is changed from “ APPARATUS AND METHOD FOR BLOCKING A LINK TO AN UNWHOLESOME SITE IN INTERNET” into --

## APPARATUS AND METHOD FOR BLOCKING ACCESS TO UNDESIRABLE WEB SITES ON THE INTERNET--

3. We correct the abstract to comply with the U.S. practice and wish to replace the originally filed abstract with the following:

An apparatus and method for blocking access to undesirable web sites by central control at a network provider side according to the subscriber requests are disclosed, in which the apparatus reduces time and expenditure for managing the subscriber side and allows the subscriber to use the Internet without anxiety of access to undesirable web sites. The apparatus according to the present invention comprises a central control center for specifying and providing a control list of undesirable web sites to be blocked, a plurality of remote control units for blocking access to the undesirable web sites on the basis of the control list, and a link control network for controlling the connection of the plurality of remote control units and the central control center.

### III. Regarding claim rejections 35 USC §102 in items 3 and 4 of the Office Action

#### 1. Regarding the present invention

The present invention relates to an apparatus and method for blocking access to the undesirable web sites associated with pornography and violence, etc. over the Internet, so that children cannot have access thereto, and serves to resolve the conventional problems disclosed below: In a Report on Trend of Undesirable Internet Website Construction Systems (Information Communication Ethics Committee, Republic of Korea, December 31, 1999), it discloses an apparatus and method for blocking access to undesirable websites at home according as application programs such as Antix, Nox, Suhocheonsa etc. are installed in personal computers, as clients, in homes, and a system and method for blocking undesirable information in LANs of schools or organizations, etc., according as respective LANs are controlled. However, the prior art methods and systems mentioned above and disclosed in the

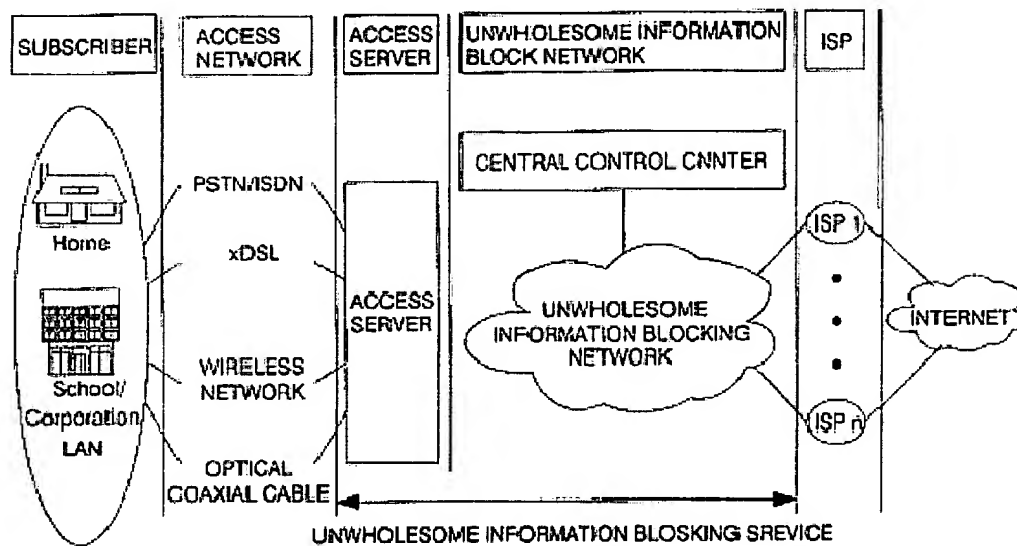
“BACKGROUND OF THE INVENTION” of the present application, have disadvantages in that, if parents’ capability of using computer is less than that of their children, the undesirable websites cannot be substantially blocked so that the children cannot access the undesirable web sites through personal computers in homes. Also, if the prior art methods and systems are applied to schools and organizations, servers for blocking undesirable web sites should be managed by full time administrators. Therefore, they require relatively high maintenance fees and time. Also, even if the servers are managed by full time administrators, the rate of successfully blocking undesirable websites is less than 50%.

To resolve the conventional problems, the apparatus and method according to the present invention do not require application programs for blocking undesirable web sites such as NCAPatrol Proxy 1.0 to be installed in respective client computers, but, instead, as shown in the following Figs. A and B, provide an undesirable web site blocking service to subscribers through an Internet Service Provider (ISP) network, such that the rate of successfully blocking undesirable websites is less than 95%.

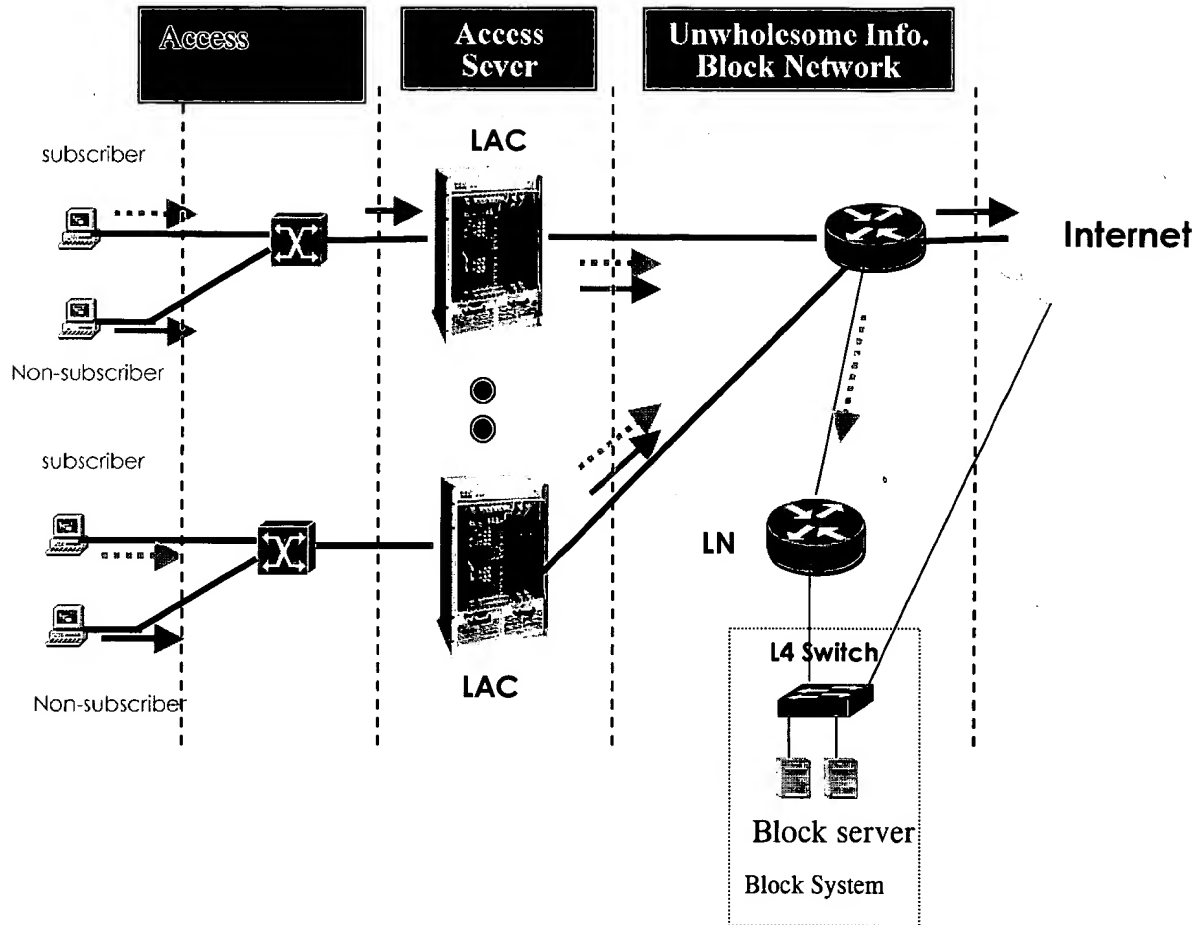
Namely, the feature of the present invention serves to block access to the undesirable web sites not by using the conventional passive manner requiring much user endeavor but a network provider’s control manner. Especially, as claimed in claim 1, the apparatus of the present invention provides an undesirable web site blocking service with high speed internet subscribers based on a plurality of remote control units in an Internet Service Provider (ISP) network, a relatively large network. Here, the remote control, as claimed in claim 6, is constructed to include a blocking control server, a connection block list DB and an expert engine. Therefore, the present invention does not require any other endeavor or management

for blocking access to undesirable web sites except that an Internet user subscribes to the undesirable web site blocking service thereto. Also, because it is difficult for Internet users to change Internet access paths for undesirable web sites, the apparatus of the present invention can effectively block access and operates stably.

[Fig. A: Fig. A is a schematic diagram of an apparatus for providing an undesirable web site blocking service to subscribers according to the present invention. Here, Fig. A is the same as that of Fig. 4 shown in the description of the present application.]



[Fig. B: Fig. B is a detailed view illustrating a procedure of an apparatus and method, using L2TP (Layer-2 Tunneling Protocol) provided in an NAS (Network Access Server), which is disclosed in Korean Patent No. 10-0443416 entitled "APPARATUS AND METHOD FOR BLOCKING A LINK TO AN UNWHOLESOME SITE IN INTERNET USING TUNNELING PROTOCOL," patented by the present applicant. Also, the invention of Korean Patent No. 10-0443416 is improved from the present invention]



## 2. Regarding cited reference, WO 01/55905 (Kessinger et al.)

Kessinger et al. patent relates to systems and methods for selectively blocking access to particular Internet websites and pages, and more specifically, to systems and methods for automatically categorizing Internet sites and pages so that users can be blocked from accessing specific categories of information.

The system for controlling access to Internet sites according to Kessinger et al. includes a first module that categorizes an Internet site into predefined subject-matter categories; a second module that stores the address of the Internet site and its associated category to a database; and a third module that controls access to the Internet site, the third module

comprising instructions that block access to the Internet site if the Internet site is within a particular category.

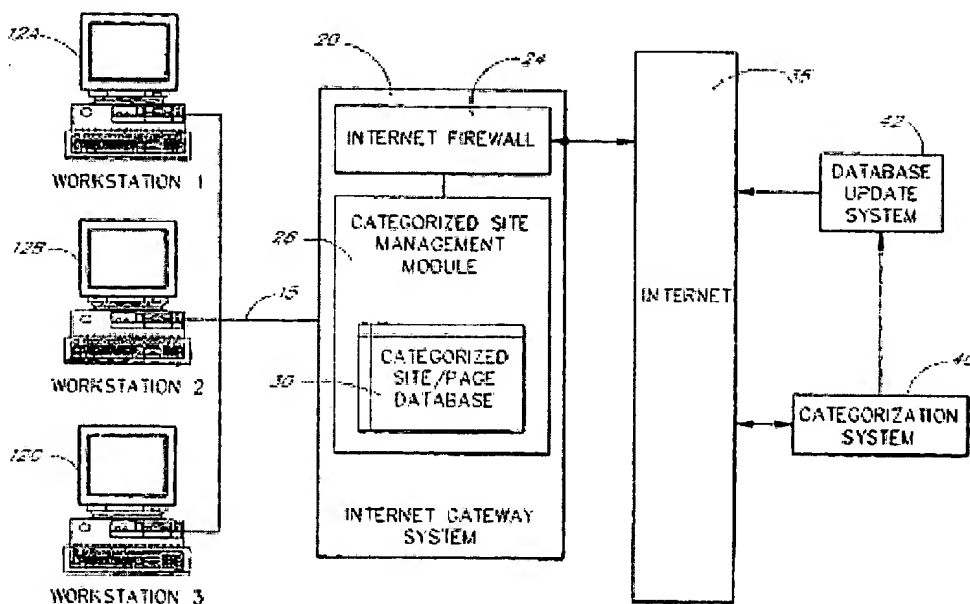
The method for creating a database of categorized Internet addresses according to one embodiment of the Kessinger et al. patent includes the steps of retrieving a first Internet page; parsing the Internet page to determine the lexical elements on the page; comparing the lexical elements to a table of category relevancies to determine the relevance of each lexical element to a subject matter category; determining the subject matter category of the Internet page based on the relevance of each lexical element to a category; and storing the address and subject matter category of the Internet page to a database.

Also, in another embodiment, the method of controlling access to an Internet site according to the Kessinger et al. includes the steps of categorizing a first Internet site into a predefined subject-matter category; storing the address of the Internet site and its associated category to a database; capturing a user request to view the site; and determining whether the user has permission to view the category of sites and, responsive to the determination, controlling access to the site.

In addition, the method of controlling access to Internet sites according to the Kessinger et al. patent includes the steps of providing a training database, the training database comprising lexical elements and their relevance to subject matter categories; determining the relevance of a plurality of Internet pages to subject matter categories; storing the address of the plurality of Internet pages and their relevance to subject matter categories to a categorized database; and comparing the Internet address of pages requested by users with said categorized database to determine if the users have permission to view the pages.

Therefore, the systems and methods for selectively blocking access to particular Internet websites and pages of Kessinger et al. analyze Internet sites based on lexical elements of HTML content, such as individual words, word pairs, adjacent words, and triplets of words and automatically categorize the Internet sites based on the analysis. The system, as shown in Fig. C, is installed within the Internet Gateway computer.

[Fig. C: Fig. C is a block diagram providing an overview of one embodiment of a system for blocking access to Internet sites, which is the same as that of FIG. 1 of Kessinger et al.]



### 3. Comparison of the present invention with cited invention

1) The feature of the present invention, as shown in Figs A and B, serves to provide an undesirable web site blocking service with high speed internet subscribers based on a plurality of remote control units disposed between Internet Service Providers (ISPs) and the high speed internet subscribers. On the other hand, the feature of the cited invention disclosed in



Kessinger et al. patent, as shown in Fig. C and described in "Detailed Description" on page 3, serves to automatically categorize Internet sites and pages based on the configuration of the Internet Firewall, Categorized site management module etc., which are installed in the Internet Gateway computer.

Therefore, the configuration of the apparatus according to the present invention is quite different from that of the cited reference.

2) The feature of the method according to the present invention serves to establish a list of undesirable web sites so that children cannot access the undesirable web sites associated with pornography and violence, etc. Namely, the list of undesirable web sites is established by operations of a web-robot and an expert engine and a manual browsing operation of an Internet browsing expert. The list is established by browsing undesirable information including text, pictures, motion pictures, chat content, news groups and FTP servers.

On the other hand, the cited invention analyzes Internet sites based on lexical elements of HTML content, such as individual words, word pairs, adjacent words, and triplets of words, automatically categorizes the Internet sites based on the analysis, and creates a database of the categorized Internet addresses based on the categorization.

Therefore the method for establishing the database according to the present invention quite differs from that of the cited invention.

### 3) Detailed description of each claim

#### (1) Regarding claim 1,

The central control center 10 of the present invention serves to manage subscriber information, such as subscriber Identifications (IDs), associated with the Internet Service

Providers (ISPs), such as KOREA TELECOM, HANARO TELECOM, and THRUNET in the Republic of Korea.

Also, "specifying control lists" of the present invention indicates lists of undesirable web sites including undesirable information which contains text associated with pornography or violence, pictures, motion pictures, chat content, news groups and FTP serves. Here, the specifying control lists are browsed by a search system comprising a web-robot, an expert engine, Internet browsing experts for manually performing internet browse and the like.

The link control network of the present invention is used to transmit a Point of Presence service for blocking access to undesirable web sites in the ISP network. Since the access control network is connected to the ISP network, as shown in Figs. A and B, the blocking system, including a block server, a switch, etc., controls access of subscribers having subscribed to an undesirable web site blocking service, connects the subscribers connected thereto via the link control network such that it enables the subscribers to receives the undesirable web site blocking service in real-time.

Unlike the cited reference employing a firewall for a server or router, as shown in Figs. A and B, the plurality of remote control units of the present invention, which are located between the ISP and subscribers, determine whether the subscribers are connected to undesirable websites based on the lists of undesirable websites from the central control center.

Especially, unlike the cited reference employing a firewall for a server or router, as shown in Figs. A and B, the plurality of remote control units of the present invention, which are located between the ISP and subscribers, determine whether the subscribers are connected

to undesirable websites based on the lists of undesirable websites from the central control center.

The blocking control server provides an undesirable web site blocking service to an ISP network controlling Internet connection of millions of subscribers.

The connection block list DB is constructed by browsing undesirable information which contains text associated with pornography or violence, pictures, motion pictures, chat content, news groups and FTP servers information. Here, the undesirable information is browsed by a search system comprising a web-robot, an expert engine, Internet browsing experts for manually performing internet browse and the like.

The expert engine browses information associated with web sites accessed by subscribers and transmits it to the central control center when the information is to be blocked.

(2) Regarding claim 2,

The central control center 10 of the present invention, as mentioned above, serves to manage subscriber information, such as subscriber IDs, associated with Internet Service Providers (ISPs) such as KOREA TELECOM, HANARO TELECOM, and THRUNET. The central control center, as shown in Fig. A, comprises a central control system, a search system and a block list system.

(3) Regarding claim 3,

The search system establishes a list of undesirable web sites associated with pornography and violence etc. Namely, the list of undesirable web sites is established by operations of a web-robot and an expert engine and a manual browsing operation of an Internet

browsing expert. The list is established by browsing undesirable information including text, pictures, motion pictures, chat content, news groups and FTP servers.

(4) Regarding claim 4 referring to claim 2, it limits the block list system including a database, a classification system and a management system.

(5) Regarding claim 5 referring to claim 3, it limits the web robot extracting information on the Internet.

(6) Regarding claim 7, the steps of registering and providing (registering information regarding the user and providing the information to a remote control unit, when an Internet user subscribes to a link block service) are achieved according as an ISP basically subscribes to the undesirable web site blocking service for blocking undesirable web sites in the network and then sends its information to the remote control unit which classifies whether users subscribe to the undesirable web site blocking service. If the users are subscribed, it substantially blocks traffic of the users, as subscribers, so that they cannot access undesirable web sites.

The steps of comparing and determining (comparing the lists of the undesirable web sites constituted by the central control center and a destination URL, and determining whether the subscriber attempts to access to undesirable web sites, when the registered subscriber attempts to access a certain site through the Internet) serve to determine whether the URL is in the lists based on the steps of registering and providing. More specifically, if a subscriber attempts to access a certain site, the access request of the subscriber is transmitted to a service POP (Point of Presence) providing an undesirable web site blocking service through the ISP network. One of the block control servers in the service POP receives traffic corresponding to

the access request and determines whether the access request is a request to access an undesirable web site.

The steps of determining and transmitting (determining that the subscriber attempts to access the undesirable web sites, and transmitting a message indicating non-allowable site to the subscriber's terminal, when the access address of the subscriber is contained in the lists of the undesirable web sites) are performed to be associated with the steps of registering, providing, comparing and determining. Here, the message indicating a disallowable web site is transmitted to the subscriber through a web browser when they attempt to access the undesirable web sites.

The steps of providing and establishing (providing a message of allowance to an ISP to which the subscriber is registered, and establishing a link between the ISP and the subscriber's terminal, when the address to which the subscribers attempts to gain access is not contained in the lists of the unwholesome sites) are performed to be associated with the other steps. Namely, the steps serve to provide access information to subscribers having subscribed to the undesirable web site blocking service to allow the subscribers to access corresponding web site if the web sites accessed by the subscribers are not contained in the lists of the undesirable web sites.

Especially, the constitution of the lists of the undesirable web sites in the central control center is achieved by the steps of preparing an initial control list DB including text, picture, motion pictures, chat content, news groups and FTP servers information, browsing whether the control list contains undesirable information and classifying the control list, updating the control list DB by changing the control list into converted data based on the browsed results

and the classified results, checking the validity of each site in the control list through a web-robot, an expert engine and an Internet browsing expert and updating the control list DB by deleting invalid sites, wherein the control list is specified by repeating the investigating step to the updating step after preparing the initial control list.

#### IV. Conclusion

Therefore the features of the present invention are quite different from those of the cited reference, Kessinger et al., and the applicant politely wishes to submit the argument and amendment against the rejection reasons, asserting novelty and comparing with the reference, Kessinger et al. Also, the applicant wishes to submit the substitute specification for clarity of the features of the present invention.

Meanwhile, the Korean Patent Application corresponding to this instant US patent application was registered in the Korean Intellectual Property Office on March 9, 2003 and assigned Korean Patent No. 329545.

Also, the apparatus according to the present invention is installed at Korea Telecom in the Republic of Korea and provides undesirable web site blocking service to subscribers therethrough, in which the Korea Telecom admits that the apparatus of the present invention can successfully block the undesirable web sites over 95%.

The Examiner has also cited a number of patents and publications as pertinent to the presently claimed invention. Since none of these have been relied upon as a reference against Applicant's claims, no further comment is deemed necessary.

In view of the above, the Examiner is respectfully requested to reconsider his position in view of the remarks made herein and the structural distinctions now set forth. The Examiner's rejection of the outstanding claims is believed to no longer apply. It is now believed that this application has been placed in condition for allowance, and such action is respectfully requested. Prompt and favorable action on the merits is earnestly solicited. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

The statements made herein with respect to the disclosures in the cited references represent the present opinions of the undersigned attorney. In the event that the Examiner disagrees with any of such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the respective references providing the basis for a contrary view.

If the Examiner believes that a telephone or other conference would be of value in expediting the prosecution of the present application, enabling an Examiner's amendment or other meaningful discussion of the case, Applicant invites the Examiner to contact Applicant's representative at the number listed below.

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With the above-referenced changes, it is believed that the application is in a condition for allowance; and Applicant respectfully requests the Examiner to pass the application on to allowance. It is not believed that any additional fees are due; however, in the event any additional fees are due, the Examiner is authorized to charge Applicant's Attorney's Deposit Account No. 03-2030.

Date: December 13, 2004

Respectfully submitted,

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Enclosures

Petition for Extension of Time - 2 Months  
Acknowledgement Postcard  
Appendices 1 and 2  
Certified Korean patent Application

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# APPARATUS AND METHOD FOR BLOCKING A ~~LINK TO AN UNWHOLESOME~~ ~~SITE IN ACCESS TO UNDESIRABLE WEB SITES ON THE INTERNET~~

## FIELD OF THE INVENTION

5        The present invention relates to an apparatus ~~for and method~~ for blocking ~~a link to an~~  
~~unwholesome~~ access to undesirable web sites by ~~limiting a connection~~ restricting access to a  
specific Internet web site classified into an ~~unwholesome~~ undesirable web site, thereby providing  
~~in order to provide an appropriate Internet connecting~~ connection service to subscribers.

## BACKGROUND OF THE INVENTION

10        Recently, Internet technology has been developed such that ~~in the extent to change a~~  
prior life style and a paradigms of thoughts are changed large. ~~Each~~ Every country in the  
world competitively makes an efforts to increase ~~an activity of Internet use~~ through ~~athe~~  
construction of super-high speed network, development of various multimedia contents,  
15        ~~magnification of competition~~ of communication markets, etc., to construct an intellectual  
information-based society.

      Such an Internet has been used to exchange various and useful information among  
Internet users ~~recognized as an excellent field for exchanging information since it provided~~  
~~various and useful information~~. However, since the Internet ~~it also~~ has open features in which  
20        Internet users are not restricted to ~~properties that do not provide a function of sorting user~~

access to the Internet sites, and it has an opposite effect on causing young people to easy to link to unwholesome in that children can easily access undesirable web sites such as obscenity obscene web sites that can be indiscriminately constructed by means of indiscrete construction of sites.

5 A In conventional systems, for blocking any unwholesome information requires an installation of a unwholesome such undesirable web sites are blocked by installing undesirable information blocking software at user's-client PCs, and an installation of a unwholesome or by installing an undesirable information blocking system to on a LAN in case of in each schools, or other organizations such as corporations, and so on.

10 The former is a type usually performed used in homes for restricting limiting the link access to an unwholesome undesirable web sites regarding to obscenity products associated with pornography, narcotics drugs, etc. by their parents. Accordingly, However, if the parents' ability for handling capability of using computer the PCs is less than that of their children, they cannot it is substantially impossible to block linking to unwholesome block access to the  
15 undesirable web sites in homes such that their by the children can access the undesirable web sites.

The latter is performed a type that a unwholesome information system is installed in a LAN of a formed in schools or other organizations, and the unwholesome information blocking server is controlled by the manager of the school or other organizations.  
20 Therefore, However, the latter has a drawback in that the consumption of it entails high

maintenance costs and time and expenditure is become great by employment of because the servers must be managed by the a full time charged manager.

The present invention is made to resolve the problems in the prior art, and an object of the invention is to provide a blocking apparatus for unwholesome sites that the access to unwholesome information is blocked automatically by central control at network provider side when the subscriber requests the service and a method of blocking the unwholesome sites using such apparatus. Another object of the invention is to provide the blocking apparatus for unwholesome sites and method that the time and expenditure for managing the access at subscriber side can be saved and thereby the subscriber can safely use the Internet.

## SUMMARY OF THE INVENTION

The present invention is made to resolve the problems in the prior art, and an object of the present invention is to provide an apparatus for blocking undesirable web sites that access to undesirable web information in undesirable web sites is automatically blocked by central control of network service provider when a subscriber requests undesirable web site blocking service, and a method for blocking undesirable websites using such apparatus.

Another object of the invention is to provide an apparatus for undesirable web sites and method that time and expenditure for managing access at subscriber side can be saved such that subscribers can safely use the Internet.

The present invention accomplishes the object by providing an apparatus for blocking

~~an unwholesome~~access undesirable web sites, which comprises a central control center for specifying and providing a control list of ~~an unwholesome~~the undesirable web sites to be blocked and for managing a subscribers; a plurality of remote control units disposed between ~~an~~ Internet Service Provider (ISP) and ~~at~~the subscribers for blocking ~~an~~ access to the ~~an unwholesome~~undesirable web sites based on the basis of the control list to be blocked supplied from the central control center when the subscribers attempts to access ~~to an unwholesome~~the undesirable web sites; and a link control network for controlling connections of the plurality of remote control units and the central control center.

The present invention also accomplishes the object by providing a method of blocking ~~an unwholesome~~access to undesirable web sites using the above blocking apparatus for ~~an unwholesome~~blocking access to the undesirable web sites, comprising of a first step of, when an Internet user subscribes to a link block service, registering information regarding ~~to~~ the user and providing the information to a remote control unit;

a second step of, when the registered subscriber attempts to access to a certain web site through Internet, comparing ~~an unwholesome~~the web site with the lists of the undesirable web site list ~~made~~constituted by a central control center and a destination URLs, and determining whether the subscriber attempts to access to ~~unwholesome information~~undesirable web sites;

a third step of, when a URL corresponding to the website accessed by ~~the access address of~~ the subscriber is contained in the ~~an unwholesome~~lists of the undesirable web sites list, determining that the subscriber attempts to access to the ~~an unwholesome~~undesirable web sites, and

transmitting a message indicative of dis-allowance site of non-allowance to the subscriber terminal;

a fourth step of, when the URL corresponding to the web site accessed by access address of the subscriber is not contained in the unwholesome lists of the undesirable web sites list, providing a message of allowance to an Internet Service Provider to which the subscriber is registered, and establishing a link between the Internet Service Provider and the subscriber terminal, wherein the second to fourth steps are repeatedly performed whenever the subscriber attempts to access a web site on the Internet.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The preferred embodiments of the present invention will be described in conjunction with the accompanying drawings, wherein:

Fig. 1 is a schematic diagram of an apparatus for providing a link block an undesirable web site blocking service for blocking to an unwholesome access to undesirable web information sites according to the present invention;

Fig. 2 is a block diagram of a central control center in the apparatus shown in Fig. 1;

Fig. 3 is a block diagram of a remote control unit in the apparatus shown in Fig. 1;

Fig. 4 is a schematic diagram showing an example for the construction of a unwholesome an undesirable web information blocking network using the apparatus of the present invention;

Fig. 5 is a flow chart for showing a method for providing a ~~link block~~ undesirable web site blocking service for an ~~unwholesome information~~ blocking undesirable web sites according to the present invention; and,

Fig. 6 is a flow chart for showing a construction process for building of a list of an  
5 ~~unwholesome information site~~ undesirable web sites.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 shows a schematic diagram of an apparatus for ~~illustrating a connection blocking~~  
~~system to an unwholesome information~~ providing an undesirable web site blocking service for  
10 blocking access to undesirable web sites on the Internet. The apparatus includes ~~link block~~  
~~system to an unwholesome information~~ system consists of a central control center 10 for  
constructing and providing a control list for an ~~unwholesome~~ undesirable web sites to be blocked  
and thereby for managing subscribers 40, a plurality of remote control units 30, disposed  
between an ISP 50 and the subscribers 40, for blocking an attempt to ~~link to access~~ an  
15 ~~unwholesome~~ undesirable web site based on the control list for an ~~unwholesome~~ undesirable web  
sites to be blocked, supplied from the central control center 10, a link control network 20 for  
controlling connection of the central control center 10 and the remote control units 30, and the  
subscribers 40 having subscribed ~~who have subscribed~~ to the undesirable web site blocking  
service of ~~unwholesome~~ for blocking access to undesirable web sites capable of accessing and  
20 ~~allowed to the Internet connection~~ through the remote control units 30. ~~Reference number~~ Here,

reference numeral 50 indicates the Internet Service Providers (ISP) who provide an Internet link services with the subscribers.

Fig. 2 is a block diagram of the central control center 10 in the apparatus system shown in Fig. 1. The central control center 10 ~~consists of~~ includes a central control system 11 for searching and recording ~~an unwholesome information~~ undesirable web sites to be blocked in real time and for supplying the recorded list of ~~unwholesome information~~ the undesirable web sites to the remote control units 30 through a link control network 20, a search system 12 for searching out ~~an unwholesome information~~ undesirable web sites ~~in~~ in web sites providing vast information through ~~of~~ the Internet and a block list system 13 for classifying, recording, sustaining ~~maintaining~~, managing or changing the Internet web site list of the ~~unwholesome~~ undesirable web information on the Internet constructed ~~searched out by the~~ search system 12. The search system 12 includes ~~an~~ an automatic search system 12a and a manual search system 12b. The automatic search system 12a ~~consists of~~ includes a web-robot for extracting ~~all~~ information of documents supplied on the Internet and an expert engine for checking ~~the~~ contents of ~~the~~ information extracted by the web-robot and extracting a list information of the web sites containing ~~an unwholesome~~ undesirable web information, and automatically refers to the contents of web sites being provided to ~~registered into~~ the Internet to extract any web sites containing ~~an unwholesome~~ undesirable web information. The manual search system 12b ~~is to search~~ serves to allow an individual to locate any web site containing ~~unwholesome~~ undesirable web information ~~by person~~. The block list system 13 includes a

database 13a for storing a list of ~~unwholesome information~~ undesirable web sites to be blocked, collecting ~~an initial~~ raw data and constructing a database by grading the collected data according to URLs to be blocked, a classification system 13b for determining whether an associated site is an ~~unwholesome~~ undesirable web site ~~in~~ on the basis of ~~site information~~ the list of undesirable  
5 web sites supplied from the search system 12, and a management system 13c for performing  
management operations on ~~managing the recorded unwholesome site list~~ such as category  
definition, site rating, ~~representative word~~ keyword management, deletion of invalid sites, etc.

The web-robot in the automatic search system 12a extracts ~~all information of documents~~  
~~located on the Internet through~~ based on Hypertext Transfer Protocol (HTTP),  
10 checks ~~investigates the redundancy of the incoming the extracted information such that it does~~  
not extract information and ~~avoids a person from devoting one~~ on a specific single site for an  
~~excessive long time~~. The expert engine in the automatic search system 12a extracts  
~~unwholesome~~ undesirable web information ~~objects including character~~ text, images, ~~moving~~  
~~picture~~ motion pictures, ~~chats~~ chatting contents, news groups and FTP downloads, and extracts a  
15 list information of Internet sites including the ~~unwholesome~~ undesirable web information ~~objects~~.

The manual search system 12b ~~is~~ serves to find ~~search out an~~ unwholesome  
~~information~~ undesirable web sites which can-not be searched ~~found-out~~ by the automatic search  
system 12a. The manual search system 12b operates through a search engine operated by an  
Internet information search expert ~~a person who searches on the Internet~~.

20 The ~~unwholesome~~ undesirable web site information output from the automatic search



system 12a or manual search system 12b is input to the block list system 13. The classification system 13b in the block list system 13 determines whether a web site is ~~unwholesome~~an undesirable web site or not on the basis of the undesirable web site information from the search system 12 using thresholds values defined for each category~~in every categories~~. The

5 ~~unwholesome~~undesirable web site list determined by the classification system 13b in the above manner is stored in the database system 13a. The database system 13a collects a primitive data through ~~ana~~a search operation of ~~searching a list for~~URLs to be blocked, grades the URLs to be blocked and in turn constructs it ~~into a~~into a database. The management system 13c manages the list of the ~~unwholesome information~~undesirable web sites stored in the database system 13a by

10 altering categories, sites, ratings, ~~representative words~~keywords, etc., and deleting invalid sites. The management system 13c ~~can be operated~~performs operations to add, correct or delete categories, ~~to correct or delete sites determined as an unwholesome~~to be undesirable web sites by the classification system 13b, and ~~to register a new sites~~. Additionally, it can search for and delete any ~~unwholesome~~undesirable web sites among the already constructed lists. It also

15 includes ~~any reviewing~~review processes which determines whether an associated URL is one of the undesirable web sites to be blocked according to a request from a subscriber. In this way, the link block system for an ~~unwholesome information~~undesirable web site according to the invention can automatically perform operation to automatize a task of efficient~~efficiently~~ search for an undesirable web ~~of a unwholesome information~~ site and periodically update ~~of the~~

20 undesirable web site lists.

Fig. 3 is a block diagram of a remote control unit 20 in the apparatus shown in Fig. 1,  
which receives the lists of ~~unwholesome information~~ undesirable web sites from the central  
control center 10 and blocks ~~attempts to connect~~ access to sites contained in the associated lists  
by the subscribers. The remote control unit 20 30 includes a blocking control server 31,  
5 coupled to the central control center 10, for specifying a block list and controlling access to the  
Internet ~~connection~~ by the subscribers, a connection block list DB 32 for storing the list of  
~~unwholesome information~~ undesirable web sites received from the central control center 10 and  
an expert engine 33 for analyzing an information utilization ~~type~~ pattern of the subscribers and  
transmitting ~~the~~ information to the central control center 10 when the information is ~~one~~ to be  
10 blocked.

The blocking control server 31 including a monitoring system 31a specifies the  
connection block list DB 32 and controls access to the Internet ~~connection~~ by the subscribers  
~~who are having~~ registered ~~for in the~~ undesirable web site blocking service ~~of unwholesome~~ for  
blocking access to undesirable web sites, based on the list. That is, the blocking control server  
15 31 determines whether ~~the connection~~ access to an associated ISP 50 is allowed, and provides  
~~the connection~~ access to the ISP 50 if ~~it~~ the web site is not included in the list of undesirable web  
sites to be blocked. The expert engine 33 inspects ~~the~~ information of the sites to which the  
subscribers attempt to ~~connect~~ access and send a notices to the central control center 10 when it  
determines that ~~as the~~ information to be blocked.

20 The ~~unwholesome~~ undesirable web information blocking network shown in Fig. 4 can

be constructed by applying the link blocking apparatus of ~~unwholesome information~~ for blocking access to undesirable web sites, constituted as described above.

According to the ~~unwholesome~~ undesirable web information blocking network shown in Fig. 4, the subscribers ~~consisting of~~ including personal computers at homes or LANs typically constructed in schools or corporations are connected to ~~an~~ the access server through PSTN/ISDN, xDSL, wireless networks or optical/coaxial cables. The access server is in turn connected to the Internet Service Provider (ISP) who provides an Internet connection service through the ~~unwholesome~~ undesirable web information blocking network, i.e. link control network 20 including the remote control unit 30 of the link blocking apparatus according to the present invention.

Therefore, among the subscribers' requests to connect to predetermined web sites, the requests for connecting to sites contained in the ~~unwholesome~~ undesirable web site list provided from the central control center 10 are blocked, and the requests for connecting to web sites being not contained in the ~~unwholesome~~ undesirable web site list are transmitted to the Internet Service Provider (ISP) according to the ~~unwholesome~~ undesirable web site information from the central control center 10, thereby ~~allows the connections to the~~ allowing the subscribers to access associated sites.

Fig. 5 is a flow chart ~~for explaining~~ showing a method ~~offor~~ for providing a ~~link block~~ undesirable web site service to ~~unwholesome information~~ for undesirable web sites using the link block system of the ~~unwholesome information~~ apparatus for blocking access to undesirable web

sites according to the present invention.

As shown in Fig. 5, when an individual ~~person~~ or an organization such as a schools and  
a corporations subscribes to the ~~unwholesome~~undesirable web site ~~link-block~~blocking service  
provided by the above described apparatus (step S501), ~~the information of the individual~~  
subscriber is registered in the central control center 10 (step S502), and the central control  
center 10 provides the ~~registered customer's information~~ of the registered subscriber to the  
remote control unit 30 (step S503).

After ~~finishing completing the subscriber's register process as registration through the~~  
above steps S501 to S503, when the subscriber attempts to access the Internet ~~the connection~~  
through ~~the own a~~ terminal (step S504), ~~the connection is made to the unwholesome~~ the terminal  
accesses the undesirable web information blocking network ~~consisting of~~including the remote  
control unit 30 and the link control network 20 through the access server as shown in Fig. 4  
(step S505).

When ~~an individual the subscriber~~ attempts to ~~connect~~ access in this fashion way, the  
remote control unit 30 determines whether the individual has ~~connecting person is~~ registered  
for the undesirable web information ~~link-block~~blocking service, compares  
~~unwholesome~~undesirable web sites in the undesirable web site list specified by the central  
control center 10 with the individual's destination URL, and determines whether the subscriber  
attempts to connect to an ~~unwholesome information~~ undesirable web site (step S506).

If the destination URL is ~~the one contained in the list of unwholesome~~ undesirable web

sites, it is determined that the subscriber is attempting s-to connect to the ~~unwholesome~~  
~~information~~undesirable web site. Then, the remote control unit 30 transmits a message  
indicating non-allowance to the subscriber and stores it in a log file (step S507).

In contrast, if the destination URL is not ~~the one contained~~ in the list of  
5 ~~unwholesome~~undesirable web sites, the remote control unit 30 transmits ~~the connecting~~  
connection information to the Internet Service Provider (ISP) 50 ~~in which~~ such that the  
~~customer subscribed and~~ subscriber can perform allows the desired Internet connection (step  
S508). After the connection, the subscriber can browse ~~do Internet surfing to the~~ associated  
web sites (step S509).

10 The above steps S506 to S509 are repeatedly performed whenever the subscriber  
changes ~~the URLs,~~ address and ~~it prohibits thereby preventing a subscriber to connect to from~~  
accessing ~~unwholesome~~undesirable web sites.

In the above description, it is necessary to specify the lists of the  
~~unwholesome~~undesirable web sites to provide more reliable blocking of connection to the  
15 ~~unwholesome~~undesirable web sites.

Fig. 6 shows a flow chart showing a construction process for a list of undesirable web  
sites, in which a ~~the~~ process of specifying the list of the ~~unwholesome~~undesirable web sites is  
performed in the link block ~~system to unwholesome information~~ apparatus for blocking access to  
undesirable web sites on the Internet according to the present invention.

20 According to the flow chart in Fig. 6, the central control center 10 ~~constitutes~~ includes

an initial control list DB (step S601). ~~Then, the~~The central control center 10 ~~inspects~~checks whether the control list contains ~~unwholesome~~undesirable web information by means of automatic search by the automatic search system 12a or manual search by the manual search system 12b (step S-602). The central control center 10 in turn classifies the control list ~~to be~~ blocked into ~~unwholesome~~undesirable web sites and ~~wholesome~~proper sites, and further classifies it by rating undesirable web sites of ~~unwholesome~~ level based on the search results. Additionally, it updates the control list DB by changing the control list ~~to the converted~~into a new list reflecting according to the search results and classified results, and ~~repeats~~repeatedly performs the process of updating the control list DB by checking ~~the~~ validity of the control list (step S605) and deleting invalid sites. In this way, the control list of web sites to be blocked is specified.

The above described apparatus and method of blocking ~~the~~ connection to ~~unwholesome~~undesirable web sites on the Internet provide the undesirable web site blocking service for blocking ~~the~~ connection to ~~the unwholesome information~~undesirable web sites by central control as an additional service of the network, thereby ~~block any~~blocking access to an ~~unhealthy data~~undesirable web sites by young people at home or in school ~~and~~ and allowing the utilization of the Internet as a storehouse of healthy knowledge for education. ~~It is~~The present invention also makes it possible to manage ~~the employees by restricting~~ limiting the use of the Internet for unnecessary activities ~~work~~ in the office, such as dealing ~~in~~with bonds and securities.

As described above, the apparatus and method according to the present invention can efficiently block access to an undesirable ~~information~~-web site without the necessity of controlling the Internet connection individually at home, school or office, thereby ~~can~~ reducing waste of time and costs for controlling the Internet connection. Also, since ~~the~~ access to an undesirable ~~unwholesome~~ web site can be ~~is~~-blocked by the central control, the apparatus and method according to the present invention enable parents and managers ~~can~~ to permit ~~the~~ use of the Internet to children and employees without anxiety. ~~Therefore,~~ Also, the apparatus and method according to the present invention have advantages in that, the Internet can be utilized ~~infor~~ for more healthy and educational purposes.

## ABSTRACT

An ~~unwholesome site blocking~~ apparatus and method for blocking access to ~~unwholesome information~~ undesirable web sites by central control at a network provider's side according to the subscriber's requests are disclosed, in which thereby the apparatus reduces the time and expenditure for managing ~~the access in the subscriber's side~~ and allows the subscriber to use ~~using the Internet~~ without anxiety of access to undesirable web sites safely. The apparatus according to the present invention comprises a central control center for specifying and providing a control list of ~~unwholesome~~ undesirable web sites to be blocked and managing subscribers, a plurality of remote control units ~~disposed between Internet Service Providers(ISP)~~ and subscribers for blocking an access to the ~~unwholesome~~ undesirable web sites on the basis of the control list ~~to be blocked supplied from the central control center when the subscriber attempts to access to unwholesome sites,~~ and a link control network for controlling the connection of the plurality of remote control units and the central control center. ~~When the subscriber attempts to connect to a certain Internet site, the remote control unit compares the lists of the unwholesome sites specified by the central control center with the destination URL and determines whether the subscriber attempts to connect to an unwholesome information site.~~ If it is determined that the subscriber attempts to connect to a ~~unwholesome information site,~~ then the remote control unit transmits a message of non allowance. ~~Otherwise, the remote control unit transmits a connecting information to the Internet Service Provider(ISP) in which the customer subscribed and allows the desired Internet connection.~~